

REMARKS

This paper is responsive to the Final Office Action dated December 18, 2006 (the “Final Office Action”).

Claims 1-152 were previously pending, with claims 47-112, 148, and 149 withdrawn from consideration. Claims 1, 23, 25, 31, 37, 38, 44, 47, 62, 63, 67, 73, 74, 78, 81, 94, 95, 99, 105, 106, 110, 113, 127, 128, 132, 138, 139, and 143 have been amended in this paper. No claims have been added or canceled in this paper.

Accordingly, claims 1-152 remain pending, with claims 47-112, 148, and 149 withdrawn from consideration.

Claims 1-46, 113-147, and 150-152 stand rejected.

The amendments to the claims add no new matter and are fully supported by the original specification, for example on pp. 21-22 (among others). While not conceding that the cited references qualify as prior art, but instead to expedite prosecution, Applicant has chosen respectfully to address the rejections as follows. Applicant reserves the right, for example in a continuing application, to establish that the cited references do not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed. Applicant offers that the pending claims are allowable in view of the remarks presented herein.

Objections to the Claims

The Final Office Action includes objections to claims 54, 57, 59, 62, 73, 86, 91, 94, and 105 and indicates that these claims include informalities. The nature of the objections is not clear. For example, the Final Office Action indicates that it is an informality that “claim 54 depends on claim 53 which has been withdrawn.” Applicant respectfully submits that one

withdrawn claim may depend on another withdrawn claim. The objected claims are currently withdrawn from consideration; they each depend on claims that are also withdrawn from consideration. Applicant is not aware of any informality in the claims that arises from their status as withdrawn claims or as dependent claims.

It is possible that the Final Office Action objects to Applicant's amending of these withdrawn claims. Each of the objected claims was amended in Applicant's previous Response dated October 6, 2006. If so, Applicant respectfully submits that the amending of withdrawn claims is an acceptable practice. Indeed, 37 C.F.R. § 1.121 indicates that withdrawn claims may be amended, and includes instructions for indicating the status of claims that are being amended while they are withdrawn from consideration. **According to Rule 1.121(c)(2), “[i]f a withdrawn claim is currently amended, its status in the claim listing may be identified as ‘withdrawn—currently amended.’”** The above amendments include this label where amendments have been made to withdrawn claims. In Applicant's previous response, the amendments to withdrawn claims were clearly marked with a similar label as “(Currently amended; Withdrawn).”

Applicant believes that these remarks are responsive to the objections to the claims. If Applicant has misunderstood the nature of the objections, Applicant respectfully requests a clarification of the objections.

Applicant respectfully submits that the claims do not include informalities. Claims 47-112, 148, and 149 have been withdrawn from consideration, and include dependencies as presented in the above Listing of Claims. In view of the above remarks, Applicant respectfully requests that the objections to the claims be withdrawn.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 3, 31-33, and 115 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter with applicant regards as the invention.

The Final Office Action asserts that a claim term in claim 31 is unclear. Claim 31 has been amended. Applicant respectfully submits that the amendment addresses the concerns regarding claim 31. Applicant respectfully submits that the amendment also addresses the concerns regarding claims 32 and 33, which depend on claim 31.

The Final Office Action also asserts that a claim term in claim 3 is unclear. Specifically, the Final Office Action indicates that it is not clearly stated what is meant by the phrase “analyzing a response to said resource request packets.”

Applicant respectfully submits that the claim term is clear and would be readily understood by a person having ordinary skill in the art in view of the language of the claim as a whole. Claim 3 depends on claims 1 and 2, which are directed to a method for restoring a virtual path in an optical network. The method includes broadcasting a plurality of “resource request packets” to a plurality of nodes in an optical network. Claim 3 includes an act of analyzing a response. The claim language clearly sets forth that the response is a response to the aforementioned resource request packets.

A person having ordinary skill in the art would also readily find examples of these limitations in the detailed description that is included in the Specification. For example, p. 13 discusses a “Restore Path Request (RPR) packet.” This packet is an example of a resource request packet in one implementation of the invention. The Specification also provides various examples of responses to the RPR packet. For example, p. 17 describes a particular situation

where “a NAK Wrong Instance is sent to the originating neighbor (step 560). The response follows the reverse of the path carried in the packet.” As another example, p. 19 discusses a situation in which an RPR has successfully reached a node at which a virtual path terminates. In this situation, “[t]he RPR is then returned as a positive response to the origin node (step 660).”

The specification further provides examples of “analyzing a response to said resource request packets.” For example, pp. 19-20 include a section entitled “The Processing of Received RPR Responses by the Origination Node.” In one example of procedures for analyzing these responses, p. 19 of the Specification states that “An originating node begins processing a negative RPR response by determining whether the node has an RPRI associated with the RPR (step 700).” The ensuing discussion provides a detailed example of one implementation of the claim term “analyzing a response to said resource request packets.”

In view of the claim language itself, and further in view of the detailed description set forth in the Specification, Applicant respectfully submits that the claim term “analyzing a response to said resource request packets” is not unclear. Accordingly, Applicant respectfully requests that the rejections of claims 3 and 115 under § 112, second paragraph be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Claims 1-6, 10-30, 34-47, 54, 58, 62, 73, 81, 86, 90, 94, 105, and 113-152 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,282,170 issued to Bentall et al. (“*Bentall*”) in view of U.S. Patent No. 5,737,319 issued to Croslin et al. (“*Croslin*”).

Claims 7-9 stand rejected under § 103(a) as being unpatentable over *Bentall* in view of *Croslin* and further in view of U.S. Patent No. 6,324,162 issued to Chaudhuri (“*Chaudhuri*”). Applicant

notes that claims 47, 54, 58, 62, 73, 81, 86, 90, 94, 105, 148, and 149 have been withdrawn from consideration. Nonetheless, Applicant is grateful for the Examiner's review of these claims.

Applicant respectfully submits that the claims are allowable under § 103(a) because the Final Office Action fails to establish an appropriate suggestion or motivation for making the proposed combination of the references, and additionally because cited references, taken either individually or in combination, fail to disclose each limitation of the pending claims.

No suggestion or motivation for the proposed combination of *Bentall* with *Croslin*.

Applicant submits that the Final Office Action additionally fails to set forth a prima facie case of obviousness because the Final Office Action fails to establish a suggestion or motivation, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The Final Office Action proposes on p. 5 that the motivation for combining *Bentall* and *Croslin* “**is to avoid the dependen[ce] of the limit preplanned routes and reduce the time delay.**” However, this proposed motivation would not commend a person having ordinary skill in the art to make the proposed combination of *Bentall* and *Croslin*, because *Bentall* itself includes features that satisfy the proposed motivation. Indeed, the motivation proposed in the Final Office Action is a goal achieved by the *Bentall* system.

Bentall provides a system that interrogates nodes on a route to gather information on possible alternative routes. (*Bentall* at 3:9-11.) Because of this feature, “**there is no need [in *Bentall*] to have preplanned preferred routes or centralised knowledge of the configuration of the network.**” (*Id.* at 3:11-15 (emphasis added).) *Bentall* also teaches techniques for making initial, possibly non-optimized, restoration routes. “The restoration route may be completed

without delay. If it can be optimised subsequently, it will be changed, to eliminate any loops, or to use routes further away from the failed part, to avoid congestion close to the failed part.” (*Id. at Abstract.*) Thus, a person having ordinary skill in the art would have no need to look beyond *Bentall*, and would in particular have no need to turn to *Croslin*, with the proposed motivation of avoiding a dependence on or limit of preplanned routes, or reducing time delay, since these goals are achieved adequately and completely in *Bentall*.

Further, it is not clear how the teachings of *Croslin* would be used to augment these goals, since these goals are not discussed in *Croslin*. The Final Office Action does not set forth any explanation of how the *Croslin* system would further these goals of the *Bentall* system. Applicant also does not see any such advantage from combining the *Bentall* and *Croslin* systems.

The teachings of *Bentall* and *Croslin* would dissuade a person having ordinary skill in the art from combining these references.

Indeed, *Bentall* and *Croslin* use contrary approaches to restoring communications. As a result, it is not clear how a combination of the *Bentall* and *Croslin* systems could be made. The cited *Croslin* procedure is at odds with the teachings of *Bentall*, since *Croslin* notes that “[d]ynamic network restoral processes require a timely and accurate portrayal of the network topology” at the time of network outages. (*Croslin* at 1:53-57 (emphasis added).) In *Croslin*, a network topology database is maintained and frequently updated. The database reflects the current real-time physical connectivity of the *Croslin* communications network. (*Id.* at 2:60-63.)

In contrast, as noted above, *Bentall* particularly teaches the gathering of information to avoid such reliance on preplanned routes or centralised configuration information. “Gathering

information on possible alternative routes means there is no need to have preplanned preferred routes or centralised knowledge of the configuration of the network, and thus the optimisation can be adaptive and easily take account of changes in network configuration.” (*Bentall* at 3:9-15.)

Thus, the teachings of *Bentall* and *Croslin* are directed at cross purposes, with *Bentall* teaching away from *Croslin*. Where *Bentall* describes techniques for avoiding a need for knowledge of a network topology, *Croslin* teaches techniques for determining network topology in support of processes that specifically require such knowledge. A person having ordinary skill in the art would therefore not use these references in furtherance of each other’s teachings, and would not have a motivation to combine these references—even with the Final Office Action’s proposed goal of “to avoid the dependen[ce] of the limit preplanned routes and [to] reduce the time delay.” The proposed motivation would not in fact lead a person having ordinary skill in the art to make the combination of *Bentall* and *Croslin*, because the references present themselves as using disparate and incompatible methods of performing network restoral. On noting that *Bentall* avoids “preplanned preferred routes or centralised knowledge,” a skilled person would turn away from restoral procedures such as *Croslin*’s use of a database for “a timely and accurate portrayal of the network topology.” These teachings cannot be easily reconciled with each other, and a skilled person would readily recognize that they can not be combined in the manner suggested by the Final Office Action. For this reason as well, the pending claims are allowable under § 103(a).

No suggestion or motivation for the proposed combination of *Bentall* and *Croslin* with *Chaudhuri*.

Additionally, no motivation or suggestion has been established for the proposed combination of *Chaudhuri* with *Bentall* or *Croslin*. The Final Office Action proposes this three-way combination in support of the rejections of claims 7-9, but is simply silent with regard to what the motivation may be for such a combination.

With regard to this three-way combination of references, the Final Office Action makes a short statement about *Chaudhuri* on p. 9 and then makes a conclusory statement about Applicant's claims:

Chaudhuri discloses the time required to determine restoration channel is 20-30 ms. Therefore, it would have been obvious to one ordinary skilled in the art to restore the failed VP in less than 2 seconds, 250ms, or 50 ms as needed in system design.

The Final Office Action appears to refer to a statement in *Chaudhuri* that describes the performance characteristics of a specific embodiment of the *Chaudhuri* system. (*Chaudhuri* at 14:28-36.) It is not at all clear that these characteristics could be achieved by the proposed hybrid system that would result from the combination of *Chaudhuri* with *Bentall* and *Croslin*. Indeed, as discussed above, it is not clear that a system can be successfully built from the disparate teachings of *Bentall* and *Croslin*. The Final Office Action offers no hints on how the techniques of *Chaudhuri* could be incorporated into the *Bentall* and *Croslin* system; thus it is not clear that the *Chaudhuri-Bentall-Croslin* system is feasible, and it is certainly not established that such a system would have the same performance characteristics as the *Chaudhuri* system.

These shortcomings highlight the failure of the references to teach the Applicant's invention. For example, Applicant's detailed description and claim 9 set forth a method that in

which the restoring of a virtual path “is completed in less than 50 milliseconds.” In contrast, the cited references do not teach a combination of technologies that are described as working together to meet any specific performance characteristics.

More specifically, the Final Office Action has not shown that the performance characteristics of *Chaudhuri* would apply to the teachings of *Bentall* and *Croslin*. Such a showing would be necessary to justify the proposed use of *Chaudhuri*’s performance characteristics as a measure of the *Bentall-Croslin* combination (assuming such a combination were even possible in the first place). The Final Office Action has also not established that any other motivation or suggestion exists for combining *Bentall* and *Croslin* with *Chaudhuri*.

“The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done.” MPEP § 2142. The Final Office Action does not meet this burden and thus, for this additional reason as well, fails to establish a *prima facie* case of obviousness with regard to claims 7-9.

The cited references do not disclose each element of independent claims 1 and 113.

As amended, the claims include limitations that are not disclosed in the cited references. For example, independent claim 1 as is directed to a method for restoring a virtual path in an optical network and includes limitations of:

preventing a request packet from being forwarded, in response to said dynamically identifying said intermediate node without resources.

This limitation is not disclosed in the cited art. At best, *Bentall* discloses the use of database for gathering information on possible alternative routes, and a “chooser” node that finds a shortest route with sufficient capacity for a path, as set forth in the following passage.

The chooser acknowledges the shortest route for each path with sufficient capacity for the path, by sending a message back to the sender, at step 142 of FIG. 9. The database of alternative routes can be amended to reflect the reduced spare capacity available for other virtual paths, at step 143. The chooser continues through its list of affected virtual paths, until all have been restored, or until all remaining virtual paths are blocked by a lack of spare capacity on alternative routes, as shown at step 144.

(*Bentall*, at 8:14-22.)

The above cited passage describes the operation of the chooser node in *Bentall*. The chooser node addresses virtual paths sequentially in a list, until either all the virtual paths have been restored or no additional virtual paths can be restored due to a lack of spare capacity.

Bentall does not, however, disclose that any component in the system prevents the forwarding of a request packet. In particular, *Bentall* does not teach that any aspect of the system prevents the forwarding of a request packet, with the preventing performed in response to the identifying of an intermediate node without resources.

Various implementations of the present invention prevent such forwarding in order to prevent “bad” instances of a packet from circulating around a network for extended periods of time. (Specification at 21.) Such undesired circulating is an example of a “broadcast storm,” which was discussed on p. 25 of the parent application (U.S. Application No. 09,232,397, which was incorporated by reference). The prevention of forwarding may thus provide some advantages in various implementations of Applicant’s invention.

Like *Bentall*, *Croslin* fails to disclose this limitation of Applicant’s claims. *Croslin* describes a dynamic network restoral application that directs a switching element to select an alternate transmission segment to replace a severed one. (*Croslin* at col. 1, lines 50-67.)

Applicant sees no description in *Croslin*, however, of any feature that prevents the forwarding of a request packet.

The cited art therefore does not describe the limitation from Applicant's claim 1 of "preventing a request packet from being forwarded, in response to said dynamically identifying said intermediate node without resources." At least for this reason, Applicant's amended claim 1 and all claims dependent therefrom are allowable under § 103(a). For at least similar reasons, Applicant's independent claim 113 and all claims dependent therefrom are also allowable under § 103(a).

The pending rejections do not adequately support the contention of inherency with regard to claims 11-21, 23-28, 29, 37-39, 40-42, 119-125, 127-129, 138-140.

With respect to Applicant's dependent claims 11-21, 23-28, 29, 37-39, 40-42, 119-125, 127-129, 138-140, the Final Office Action proposes on pp. 6-8 that various limitations these claims would be "inherently" achieved or would be "well known" in the art. A number of these arguments appear to be attempts to address several shortcomings that were present in the previously pending rejections, and which were pointed out in Applicant's previous response (dated October 6, 2006). The reliance on the supposed inherency of these limitations is crucial. Since the Final Office Action does not propose that the cited references disclose these limitations, the rejections necessarily depend on the supposed inherency. The reliance on the supposed inherency of these limitations is also fatal, since the Final Office Action fails to support the assertions of inherency.

The Final Office Action fails to meet the appropriate standards for an assertion of inherency. According to the *Manual of Patent Examining Procedure* (Ed. 8, Rev. 5, Aug. 2006),

“[t]o establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” (MPEP § 2112(IV) (internal quotations omitted).) The Final Office Action does not meet this standard, since it merely asserts the inherent nature of various features without explanation.

For example, on p. 7, the Final Office Action addresses the limitation of “changing a state of said virtual path to down” in Applicant’s claim 25. The Final Office Action refers to the mention of an “alarm” in FIG. 8, and simply asserts that “an alarm is raised indicating a link is failed inherently shows the VP is going down.” This scant explanation does not support the pending rejection. It would take a large and illogical jump in reasoning to go from the presence of an alarm in *Bentall* to the particular limitation being addressed. The mere presence of an alarm does not render “inherent” the claim limitation of “changing a state of said virtual path to down.”

As another example, Applicant’s claim 11 considers a situation in which a local physical port failure occurs between a first node and an adjacent node. Rather than involving yet another node in the restoration, the method of claim 11 seeks a different physical port that is available between these two nodes, and provisions the virtual path to that available physical port. The Final Office Action asserts that this provisioning is inherent: a “reroute to alternative route would inherently switch to another physical port.” Again, this assertion of inherency is made without support. It is also plainly incorrect: a rerouting to an alternate route would not necessarily involve a switch of ports in *Bentall*: those nodes could conceivably use the same ports at the endpoints of a path for both an initial route and for an alternate route. (In addition, the pending rejection fails to address each of the limitations of claim 11, since the rejection appears to rely on a rerouting of a path: In claim 11, two adjacent nodes address a port failure

without resorting to rerouting communication through any additional nodes.) The proffered arguments thus do not support the supposed inherency of provisioning a virtual path to an available and different physical port of a link between adjacent nodes.

Applicant respectfully disagrees that the various limitations of the claims would inherently be met by the cited references. Applicant also respectfully disagrees with the assertion of inherency with regard to the limitations of claims 1 and 113 on p. 4 of the Final Office Action. If it is the Examiner's position that the rejection is based on a personal knowledge that these limitations are well-known, Applicant again requests that the facts be supported by an affidavit from the Examiner in accordance with MPEP § 2144.03(C) and 37 C.F.R. § 1.104(d)(2). Applicant respectfully submits that the currently pending rejections of claims 11-21, 23-28, 29, 37-39, 40-42, 119-125, 127-129, 138-140 fail to meet the standards for a rejection under § 103(a), and should be withdrawn.

CONCLUSION

Applicant submits that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia, 22313-1450, on February 20, 2007.



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2067 Feb 20

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